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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,963	09/18/2003	Motoyoshi Murakami	I0873.1304US01	8328

7590 10/30/2007  
HAMRE, SCHUMANN, MUELLER & LARSON PC  
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Minneapolis, MN 55402

EXAMINER
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DAVIS, DAVID DONALD

ART UNIT	PAPER NUMBER
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2627

MAIL DATE	DELIVERY MODE
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10/30/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/665,963	<b>Applicant(s)</b> MURAKAMI ET AL.	
	<b>Examiner</b> David D. Davis	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 8-28 is/are pending in the application.  
     4a) Of the above claim(s) 9-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,8 and 28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                      |                                                                                        |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                          | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                 | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____                                                |

## DETAILED ACTION

### *Election/Restrictions*

1. Claims 9-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group and Species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 31, 2005.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 3-4, 8 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiratori et al (US 6,027,825) in view of Ito (US 6,660,404). Shiratori et al shows in figure 23A a magnetic recording medium including a disk substrate and a recording layer 1704. The recording layer 1704 of Shiratori et al as disclosed in column 15, lines 11-55 has magnetic

anisotropy along a direction perpendicular to a surface of the disk substrate. Also, disclosed in Shiratori et al column 15, lines 11-55, is the recording layer 1704 having a super-latticed structure by which the recording layer is formed so that a product of a coercive force  $H_c$  and saturated magnetization  $M_s$  of the recording layer 1704 ( $M_s \cdot H_c$ ) at room temperatures is increased sufficiently so that a shortest mark length of the recording layer 1704 can be decreased to a desired value.

Shiratori et al shows in figure 23A a reproduction layer 1701 formed between the recording layer 1704 and the disk substrate for reproducing information recorded in the recording layer 1704. Figure 23A also shows an intermediate layer 1703 formed between the reproduction layer 1701 and the recording layer 1704 for controlling exchange coupling between the reproduction layer 1701 and the recording layer 1704. The recorded information is thermomagnetically recorded as magnetic domains in the recording layer 1704, the magnetic domains are transcribed into the reproduction layer 1701, and a domain wall between the magnetic domains that are transcribed into the reproduction layer 1701 shifts along a direction parallel to a surface of the reproduction layer 1701 so that the recorded information is reproduced. See Shiratori et al column 15, lines 11-55.

The table in column 15 of Shiratori shows the recording layer including at least Tb, Fe and Co. Figure 12 of Shiratori, for example shows the recording layer being laminated.

The magnetic recording medium described in column 15, lines 11-55 and shown in figure 23A of Shiratori et al is considered to flow from the claimed product relationship of the coercive force and the saturated magnetization.

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Assuming arguendo that the magnetic head of Shiratori et al is silent as to the claimed product relationship, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a magnetic medium that flowed from the claimed product relationship of the coercive force and the saturated magnetization so that "the operation of the medium is stabilized". See column 15, lines 52-55 of Shiratori et al.

Shiratori et al is silent as to a lamination period of about 0.4 nanometers to no more than 2 nanometers.

Ito discloses in column 10, lines 65-67 a lamination period of about 0.4 nanometers to no more than 2 nanometers.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the medium of Shiratori et al with a lamination period of about 0.4 nanometers to no more than 2 nanometers as taught in Ito. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to provide a medium with a lamination period of about 0.4 nanometers to no more than 2 nanometers so that there "was nearly no aging with the lapse of time." See column 9, 26-28.

### ***Response to Arguments***

5. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.


### ***Conclusion***

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is 571-272-7572. The examiner can normally be reached on Monday thru Friday between 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne D. Bost can be reached on 571-272-7023. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
David D. Davis  
Primary Examiner  
Art Unit 2627

ddd